

## Part II : EC Market Integration and Asian Industrializing Region : 3.Economic Impact of Ec Market Integration in Asian Industrializing Region: Measurement by PAIR Linkk Model

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# Economic Impact of EC Market Integration on Asian Industrializing Region: Measurement by PAIR Link Model

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## Abstract

Economic impact of the EC market integration on the Asian industrializing region (AIR) is measured by using the PAIR link model, where AIR consists of the Asian NIEs, ASEAN4 and China. The PAIR link model covers major trading partners of the AIR economies; namely, the developed economies in the Pacific rim in addition to the major EC countries.

Five simulations are conducted to evaluate impact of the EC market integration on the AIR economies; namely, effects of trade creation and those of trade diversion. In the first four simulations, only the import-block of models for France, Germany, the United Kingdom, and the other EC region are included in the link model, which we call the partial PAIR link model. In the last simulation, small but complete models for these EC countries and region are included in the link model, which we call the full PAIR link model.

One-time shock simulations are carried out mainly because it is difficult to make a medium term, such as a six-year period, shock scenario for the EC economy when repercussive effects explicitly appear in the link model. Simulations are conducted inside the sample period, 1986-1990, partly because of uncertainty of agreement on the Uruguay Round.

By simulating the partial PAIR link model, trade creation effects of the EC market integration on exports and GDP of the AIR economies are found to be larger than the negative effects of trade diversion. Trade creation effects on the AIR economies measured in the simulation of the full PAIR link model; namely, with repercussive effects on the EC itself, are larger than those found in the simulation of the partial PAIR link model.

In this study, all the AIR economies are found to enjoy positive net effects of the EC market integration. Especially the Asian NIEs are found to be the largest beneficiary of the EC market integration among the AIR economies. It is mainly because the Asian NIEs specialize in exports of manufactured goods for which income-elasticities of the EC countries and region are elastic.

## I. Introduction

The Asian NIEs (South Korea, Taiwan, Hong Kong and Singapore), ASEAN4 (Thailand, Malaysia, Indonesia and the Philippines) and China had enjoyed high economic growth in the latter half of the 1980s. Because of this high economic performance, we can call the region consisting of these nine economies as Asian Industrializing Region (AIR). The economic success of AIR in this period is mainly brought about by a continuous economic expansion of the developed economies, especially of the United States, the large magnitude of the appreciation of the Japanese yen against the US dollar, and the inflow of foreign direct investment, especially from Japan into AIR.

The European Community (EC) also enjoyed high economic performances in the latter half of the 1980s. Mainly due to expanding economic activities of both AIR and the EC, the trade between them had increased in that period. Exports of AIR to the EC expanded at an annual average rate of 23.5% in the 1985-91 period. Those of the NIEs, ASEAN4 and China to the EC market rose, on annual average, at rates of 25.6%, 20.1% and 19.1% respectively. Because of these high export expansion rates, the EC's share in exports of AIR had increased from 10.7% in 1985 to 14.9% in 1991. Table 1 shows the corresponding changes in the EC's share in exports of the NIEs, ASEAN4 and China. Imports of AIR from the EC also increased at a rate of 17.7% in the same period, though the EC's share in imports of AIR had almost remained the same, 12.5% in 1985 and 12.7% in 1991. (See Table 2 for AIR's imports from the EC and changes in EC's shares.)

On the EC side, efforts had been made to create a single market of twelve member countries by the end of 1992. Emergence of the large single market in the EC would affect developing countries as well as developed ones. Pohl and Sorsa (1992) discuss effects of the EC market integration on developing countries in general but extensively. Mayes (1990) describes impact of the EC integration on Asia-Pacific, and Han (1992) investigates its effects on the NIEs.

In this paper, we aim at measuring possible impact of the EC market integration on the AIR economies by using our PAIR link model, where PAIR stands for Projections for Asian Industrializing Region. Since the PAIR link model contains country-models for the United States and Japan in addition to those for the Asian and the European countries/regions, we can incorporate repercussive effects of the EC market integration on the Asian economies through the United States and Japan.

In the following, firstly the basic characteristics of the PAIR link model are discussed in Section II. Secondly numerical interpretations of the intra-EC impact of the EC market integration are discussed. These are to be used as assumptions when the PAIR link model is simulated to measure effects of the EC market integration on AIR. These simulated results are described in Section III. A summary and concluding remarks are presented in Section IV.

Table 1. Exports of Asian Industrializing Region (AIR) to the EC

(million of US dollars)

	1985	1986	1987	1988	1989	1990	1991	Average Growth Rate (%)
NIEs	12,135	16,337	24,900	32,077	34,099	41,208	47,720	25.6
(Share, %)*	10.6	12.3	14.0	14.3	13.9	15.4	15.7	
ASEAN4	5,405	6,200	7,795	9,783	11,373	13,863	16,211	20.1
(Share, %)*	11.8	14.6	14.9	15.4	15.2	16.0	16.2	
China	2,395	4,248	4,170	5,056	5,211	5,995	6,826	19.1
(Share, %)*	8.8	13.5	10.6	10.6	9.8	9.3	9.5	
AIR**	19,935	26,785	36,865	46,916	50,682	61,065	70,757	23.5
(Share, %)*	10.7	13.0	13.7	14.0	13.6	14.6	14.9	

Notes: \* Percentage share of exports to the EC in total exports of the corresponding regions and country.

\*\* AIR consists of NIEs, ASEAN4 and China.

Sources: *Direction of Trade, Yearbook 1992*, IMF except for Taiwan. *Monthly Statistics of Exports and Imports, Taiwan Area*, Oct., 1992 for Taiwan.

Table 2. Imports of Asian Industrializing Region (AIR) from the EC

(million of US dollars)

	1985	1986	1987	1988	1989	1990	1991	Average Growth Rate (%)
NIEs	11,458	13,112	18,326	24,265	26,582	31,617	37,253	21.7
(Share, %)*	13.4	14.1	14.8	15.2	15.3	16.0	16.8	
ASEAN4	5,413	5,419	6,996	9,091	10,630	14,819	16,229	20.1
(Share, %)*	14.6	15.1	15.4	15.4	14.1	15.2	14.4	
China	6,386	8,052	7,563	8,564	9,467	8,412	8,500	4.9
(Share, %)*	15.0	18.6	17.5	15.5	16.0	15.4	13.3	
AIR**	23,257	26,582	32,885	41,920	46,679	54,849	61,982	17.7
(Share, %)*	12.5	13.6	13.4	13.0	12.6	13.1	12.7	

Notes: \* Percentage share of imports from the EC in total imports of the corresponding regions and country.

\*\* AIR consists of NIEs, ASEAN4 and China.

Sources: Same as Table 1.

## II. PAIR Link Model

Our institute, the Institute of Developing Economies (IDE), had developed econometric models for the NIEs (excluding Hong Kong) and ASEAN4 under the ELSA (Econometric Link System for ASEAN) project in the 1981-90 period. (See Statistics Department, IDE, ed., (1985) for the original version of these models.) The five-year PAIR project (1991-1995) of the IDE succeeds these models.

In the PAIR project, not only the ELSA country/region models have been maintained or revised but also models for China, Hong Kong, Australia, New Zealand, Canada, the United States, France, Germany, the United Kingdom, the other EC region, and Japan have been constructed. Among these models, the Chinese model was firstly constructed by the State Information Center of China and revised by Toida, et al. (1990) in another but related project, Econometric Link Model of China and Japan.

The PAIR/ELSA models for the NIEs and ASEAN4 have been used to make short-run forecasts of economic growth and inflation for these economies in the last eight years, which have been released to the press. In order to measure economic impact of the EC market integration on the AIR economies, the PAIR country/region models need to be expanded and linked by a trade matrix.

Expansions of the PAIR country/region models have been done in two ways. First, imports of three commodity groups; namely, agricultural and mining goods (SITC 0, 1, 2, 4), fuels (SITC 3), and manufactures (SITC 5, 6, 7, 8, 9) have been estimated. Even though estimation of a fuel-import function is not successful for some countries/regions, import functions for the other two commodity-groups are successfully estimated except for imports of agricultural and mining goods for the Philippines. The basic specification for an import function for the three commodity groups is the following.

$$MC_{ij} = f_{ij}(GDP_j, PMC_{ij}/PDC_{ij}),$$

where

$MC_{ij}$  : Imports of the  $i$ -th commodity group of the  $j$ -th country,

$GDP_j$  : GDP of the  $j$ -th country,

$PMC_{ij}$  : Import prices of the  $i$ -th commodity group of the  $j$ -th country,

$PDC_{ij}$  : Domestic (wholesale) prices of the  $i$ -th commodity group of the  $j$ -th country.

$i = 1$  (Agricultural and mining goods),

$2$  (Fuels),

$3$  (Manufactures).

In most of the PAIR country-models, the money supply is exogenously included. There is a possibility to observe an unexpected decline in general prices if GDP is increased due to an external shock, such as an increase in exports, in these models. In order to avoid this unintended decrease in general prices, a passive money supply function is introduced in these models: the money supply is specified to respond to a change in GDP.

After expanding the PAIR country/region models with respect to imports and the money supply, these models are linked to each other through the 1987 world wide import share matrices of the three commodity groups. The linkage method is simple. Each country/region model basically has import functions by three commodity groups. These estimated imports are put into the import-share matrices. Exports by three commodity groups are calculated in the import-share matrices

and put into country/region models. These procedures continue until all the country/region models are solved. In sum, there are eighteen country/region models in the PAIR link model; four NIEs, four ASEAN countries, China and Japan in Asia; Australia and New Zealand in Oceania; Canada and the United States in North America; France, Germany, the United Kingdom and the other EC region in Europe. Thus, major trading partners of the AIR economies are contained in the PAIR link model.

### III. Effects of EC Market Integration on AIR Economies

Macroeconomic impact of the EC market integration on itself is reported by Catinat, Donni and Italianer (1988), and Emerson et al. (1988) among others. These studies measure economic consequences of eliminating physical and technical barriers within the EC. Basically they estimate macroeconomic feedback of improved production efficiency or cost reductions which are caused by completion of the EC single market. It is also noticed that when they make a simulation analysis of the intra-EC impact, no repercussive effects from the third countries are explicitly incorporated.

According to the above mentioned studies, GDP of the EC increases by 4.5% (both Catinat, Donni and Italianer, and Emerson et al.) and the GDP deflator of the EC decreases by 6.3% (Emerson et al.) or 6.5% (Catinat, Donni and Italianer) in the medium-term (in six years.) Emerson et al. also report higher GDP in the range of 6.5% to 7.5% and lower decreases in prices in the range of -4.3% to -4.9% in terms of CPI of the EC when three alternative, stimulative economic policy measures are accompanied.

An expansion of the EC's GDP due to completion of the single market increases imports from outside-EC economies, which can be called a trade creation effect for outside-EC economies.<sup>1)</sup> A reduction of EC's general prices resulting from the EC market integration can be regarded as an increase in the relative price of imported goods to EC domestic goods ( $RP_i = PMC_i/PDC_i$ ,  $i=1,3$ ) in an international environment.<sup>2)</sup> In our analysis, cost reductions due to completion of the EC market are represented by an increase in this relative price of imports to domestic goods.<sup>3)</sup> The reduction of EC's domestic prices, or an increase in the relative import price, will decline imports from non-member economies, which can be called a trade diversion effect for outside-EC economies,<sup>4)</sup> while increasing EC's demand for its product.

When we attempt to measure impact of the EC market integration on AIR, we assume that GDP of the EC rises by 5% and the relative import prices to EC domestic ones rise by 5% only in the first year of the simulation period (one-time shock), compared to these figures in a base case simulation. The "5%" shocks to EC's GDP and to relative import prices are assumed, considering the intra-EC impact figures in Catinat, Donni and Italianer, and Emerson et al., though their figures are medium-term effects. A one-time shock, instead of six-year long shocks on the EC's GDP and its relative import prices, is adopted because it is difficult to make a six-year long assumption on the EC economy when at least two other large

economies, the United States and Japan, are explicitly included in an analysis. There must be repercussive effects among the economies of the EC, the United States and Japan when a shock is given to the EC. Further, policy reactions of these three economies are also difficult to be assumed in a six-year period.

The GDP and the relative import price shocks are given in 1986 and the PAIR link model is simulated up to 1990. A more "realistic" simulation period, such as 1993-1998, is not adopted partly because it is difficult to obtain a base line forecast itself for the eighteen economies covered in this study, and partly because of uncertainty of agreement on the Uruguay Round which affects both a base line simulation and shock simulations.

In the following, five simulation results are reported. In the first four simulations of III-A~III-D we assume no repercussive effects on the EC from external economies. In other words, only import functions of Germany, France, the United Kingdom and the other EC region (OEC) are included in the link model, which we call the partial PAIR link model. In the last simulation III-E, our complete models for these European countries and region are incorporated in the link model, which can be called the full PAIR link model, to see repercussive effects on the EC from outside-EC economies, but only the EC's GDP shock is attempted for a simulation. The results of these five simulations on the main variables of the AIR economies; namely, exports, GDP and GDP deflators, are discussed in the following sub-sections. Simulation results on other major variables of the AIR economies as well as those of other countries and regions in the PAIR link model are presented in Appendix; Tables A2~A4 for Simulation III-A, Tables A5~A7 for Simulation III-B, Tables A8~A10 for Simulation III-C, Tables A11~A13 for Simulation III-D, and Tables A14~A16 for Simulation III-E.

### III-A. Trade Creation Effects on AIR

Imports of agricultural and mining goods (MC1) and those of manufactures (MC3) for France, Germany, the United Kingdom and the other EC region are satisfactorily estimated in both theoretical and statistical senses, though no satisfactory estimations are obtained for imports of fuels (MC2). These estimated MC1 and MC3 equations for these EC countries and region are presented in Table A1. When GDP of the three EC countries, France, Germany and the United Kingdom (U.K.), and the OEC are increased by 5%, the partial PAIR link model, first of all, is dynamically converged and solved. (Dynamic stability is also found in the following four shock simulations.) EC imports of agricultural and mining goods (MC1) of the four country/region are raised by 4.16% to 6.79% in 1986. (In the following, only the simultaneous-year impacts; that is, those occurred in 1986, are reported.) EC imports of manufactures (MC3) are increased by 9.02% to 15.65% (See Table 3.)

Table 4 shows trade creation effects on the AIR economies. The largest beneficiary is the NIEs; exports of commodity (XC) rise by 4.14%, which leads to a 1.21% increase in GDP with a 0.32% increase in GDP deflator (PGDP), compared to figures in the base line simulation.

ASEAN4 receive trade creation effects on their exports of agricultural and min-

ing goods (XC1) and their exports of manufactures (XC3), whose magnitudes in percentage terms are similar to those of the NIEs. While import functions of fuels (MC2) for the European countries and region are not contained but MC2 functions are estimated and included in some other country/region models including those for the United States and Japan. Hence, exports of fuels (XC2) of ASEAN4 are raised by 0.25% due to the indirect impact of the increased EC's GDP, through increases in MC2 of other countries and regions. Even though XC1 and XC3 of ASEAN4 are expanded by similar percentages to those of the NIEs, an increase in XC of ASEAN4 is only 2.13% and does not match with the 4.14% increase in XC of the NIEs. This reflects the fact that a share of XC3 in XC was 87% for the NIEs but the XC3 share was only 35% for ASEAN4 in 1986.

China receives almost the same impact on XC1 as the NIEs and ASEAN4 do but it obtains smaller impact on XC3 than the NIEs and ASEAN4 in percentage terms. This is partly because considerable amounts of Chinese product are exported to developed economies, including the EC, through Hong Kong and these amounts are not recorded as Chinese exports but as those of Hong Kong. With respect to GDP (GNP for China), China obtains lower impact of a 0.89% increase than the NIEs and ASEAN4, of which increases of GDP are 1.21% and 1.18% respectively. However, inflationary impact is 0.28% for China, which is smaller than that for the NIEs and ASEAN4. The AIR economy as a whole enjoys a 3.57% increase in exports of commodity, a 1.08% increase in GDP with a 0.35% price hike.

### III-B. Trade Diversion Effects on AIR

EC's relative import prices to domestic ones for agricultural and mining goods (RP1) and for manufactures (RP3) are increased by 5% in 1986, representing a decrease in EC domestic prices due to completion of the single EC market. Table 5 shows decreases in imports of France, Germany, the United Kingdom and the OEC caused by these price shocks.

Since the estimated price elasticities of imports of agricultural and mining goods (MC1) of the EC countries and region are inelastic, between 0.17 and 0.25, a decrease in MC1 ranges from 0.83% for the U.K. to 1.18% for France. The price elasticities of imports of manufactures (MC3) for France, Germany and the U.K. are estimated to be inelastic, 0.91, 0.59 and 0.51 respectively, but higher than those of MC1. The price elasticity of MC3 for the OEC is 0.19 and lower than that of MC1. (See Table A1.) Reflecting the different magnitudes of the price elasticities, a decline of MC3 of France is the largest, 4.36%, followed by Germany, 2.84%, the U.K., 2.47%, and the OEC, 0.65%. The percentage decreases in MC1, MC3 and MC of the EC countries and region in the case of the 5% increase in both RP1 and RP3 are shown in Table 5.

Table 6 summarizes the trade diversion effects on the AIR economies caused by the 5% increases in both RP1 and RP3 of the EC. For exports of agricultural and mining goods (XC1), the NIEs, ASEAN4 and China are given similar effects in percentage terms, the decreases of 0.20% or less. For exports of manufactures (XC3), ASEAN4 receive the largest impact of -0.94%, followed by -0.84% for the NIEs and -0.59% for China. The share of manufactured goods in total exports



Table 3. Increases in EC's Imports due to 5% Rise in EC's GDP (%)

	MC1	MC3	MC
France	4.62	11.40	8.40
Germany	6.79	13.39	9.60
U.K.	4.58	15.65	11.96
OEC	4.16	9.02	6.79

- Notes: 1) Percentage changes from the base line simulation  
 2) MC1: Imports of agricultural and mining goods (SITC 0,1,2,4)  
 3) MC3: Imports of manufactures (SITC 5-9)  
 4) MC : Imports of commodities  
 5) OEC: Other EC countries

Table 4. Trade Creation Effects:  
Impact on AIR Economies of 5% Increase in EC's GDP (%)

	XC1	XC2	XC3	XC	GDP	PGDP
NIEs	1.16	0.12	4.68	4.14	1.21	0.32
ASEAN4	1.13	0.25	5.02	2.13	1.18	0.46
China	1.15	0.12	3.38	3.08	0.89	0.28
AIR	1.14	0.18	4.43	3.57	1.08	0.35

- Notes: 1) Percentage changes from the base line simulation  
 2) XC1 : Exports of agricultural and mining goods (SITC 0,1,2,4)  
 3) XC2 : Exports of fuels (SITC 3)  
 4) XC3 : Exports of manufactures (SITC 5-9)  
 5) XC : Exports of commodities  
 6) PGDP: GDP deflator  
 7) GNP and PGNP (GNP deflator) for China

is, however, much higher for the NIEs than that of ASEAN4 and China. Hence, the NIEs receive the largest decrease in exports of commodities (XC), a 0.74% decrease, which leads to the largest decline in their GDP of 0.22% among the AIR economies. AIR as a whole suffers from a 0.64% decline of XC and a 0.19% decrease of GDP with a slight 0.06% decline of GDP deflator (PGDP).

### III-C. Combined Effects of Both Trade Creation and Trade Diversion

In order to measure combined impact of trade creation and trade diversion, both GDP and relative import prices (RP1 and RP3) of the EC are increased by 5% in 1986. Table 7 shows all MC1s and MC3s of the EC countries and region are positive, revealing that effects of trade creation are larger than those of trade diversion when the same percentage shock of 5% are given both to EC's GDP and

Table 5. Decreases in EC's Imports due to 5% Rise in Relative Import Prices Both for Agricultural and Mining Goods (RP1) and for Manufactures (RP3) of the EC

	MC1	MC3	MC
France	-1.18	-4.36	-3.19
Germany	-1.05	-2.84	-1.97
U.K.	-0.83	-2.47	-1.91
OECD	-0.86	-0.65	-0.60

Note: See the footnotes to Table 3.

Table 6. Trade Diversion Effects: Impact on AIR Economies of 5% Increases in Both RP1 and RP3 of the EC

	XC1	XC2	XC3	XC	GDP	PGDP
NIEs	-0.17	-0.02	-0.84	-0.74	-0.22	-0.06
ASEAN4	-0.20	-0.04	-0.94	-0.39	-0.21	-0.08
China	-0.20	-0.02	-0.59	-0.53	-0.16	-0.05
AIR	-0.19	-0.03	-0.80	-0.64	-0.19	-0.06

Note: See the footnotes to Table 4.

to its relative import prices to domestic ones. Table 7 also records that imports of commodities (MC) increase by 9.77% for the U.K., 7.39% for Germany, 6.19% for the OECD and 4.86% for France. The smallest increase in MC for France mainly reflects the highest price elasticity of imports of manufactures (MC3) for France. For MC1s and MC3s, theoretically we expect to obtain the sum of those in Simulations III-A and III-B. When import functions are linear, the above statement exactly holds; MC1s for Germany and the OECD, and MC3 for the OECD. If import functions are in a logarithm form, the above stated relation does not exactly hold because of accumulated rounding errors in the process of calculations. However, basically the results obtained in this simulation are the sum of the previous two simulations.

Table 8 describes the combined effects of trade creation and trade diversion on the AIR economies. Exports of commodities are increased for AIR as a whole, 0.93% for XC1, 0.14% for XC2, 3.49% for XC3 and 2.82% for XC. GDP of AIR is increased by 0.85% with a 0.28% price hike. The NIEs enjoy the largest increase in GDP, a rise of 0.95%, among the AIR economies.

Table 7. Impact on EC's Imports of 5% Increase in EC's GDP and 5% Increases in Relative Import Prices for Both Agricultural and Mining Goods (RP1) and Manufactures (RP3) of the EC

	MC1	MC3	MC
France	3.39	6.54	4.86
Germany	5.74	10.17	7.39
U.K.	3.71	12.79	9.77
OEC	3.30	8.37	6.19

Note: See the footnotes to Table 3.

Table 8. Combined Effects of Both Trade Creation and Diversion on AIR Economies

	XC1	XC2	XC3	XC	GDP	PGDP
NIEs	0.96	0.09	3.69	3.26	0.95	0.25
ASEAN4	0.92	0.20	3.92	1.68	0.93	0.37
China	0.93	0.09	2.66	2.43	0.70	0.22
AIR	0.93	0.14	3.49	2.82	0.85	0.28

Note: See the footnotes to Table 4.

### III-D. Effects of Trade Creation and Trade Diversion only in Manufacturing Industry

Catinat, Donni and Italianer, and Emerson et al. identify four areas in which benefits arise from completion of the single EC market; elimination of customs control, opening up of public procurement, financial services and capital market integration, and a supply (improved production efficiency) effect. It is reasonable to assume that the manufacturing industry enjoys these cost-reduction benefits much more than the agricultural and mining industries. In this sub-section, we study combined effects of economy-wide trade creation and trade diversion only in the manufacturing industry.

When EC's GDP and RP3 are increased by 5% each, while no shock is given to RP1, only figures for MC1s of the EC countries and region differ from the figures in Table 7, which presents effects on the EC's imports of 5% shocks to EC's GDP, RP1 and RP3 in the previous simulation, while MC3s remain the same. (See Table 9.) Reflecting smaller price elasticities of MC1 than those of MC3, MCs in Table 9 do not increase much compared to those in Table 7.

Combined effects of trade creation and trade diversion only for manufactures on the AIR economies are shown in Table 10. In this case again, the former effects

**Table 9. Impact on EC's Imports of 5% Increase in EC's GDP and 5% Increase in Relative Import Price of Manufactures (RP3) of the EC**

	MC1	MC3	MC
France	4.62	6.54	4.93
Germany	6.79	10.17	7.58
U.K.	4.58	12.79	9.92
OEC	4.16	8.37	6.36

Note: See the footnotes to Table 3.

**Table 10. Effects of Trade Creation and Trade Diversion in Manufacturing Industry on AIR Economies**

	XC1	XC2	XC3	XC	GDP	PGDP
NIEs	1.06	0.10	3.71	3.29	0.96	0.26
ASEAN4	1.08	0.20	3.94	1.77	0.99	0.39
China	1.09	0.10	2.67	2.49	0.72	0.22
AIR	1.08	0.14	3.51	2.86	0.88	0.29

Note: See the footnotes to Table 4.

are larger than the latter ones with respect to exports and GDP of all the AIR economies. Different from the results obtained in the previous first and third cases, the impact on GDP in percentage terms is larger, though slightly, for ASEAN4, a 0.99% increase, than that for the NIEs, a 0.96% rise. This outcome results from the fact that the NIEs depend more heavily on exports of manufactured goods, which the 5% decrease in the EC's RP3s negatively affects, than ASEAN4 do. However, we should note here that, even in this simulation, the total impact on GDP of the NIEs is much larger than that for ASEAN4 in quantity terms, because GDP of the NIEs is almost twice as large as that of ASEAN4. For the AIR economy as a whole, XC1, XC3 and XC are expanded by 1.08%, 3.51% and 2.86%, respectively. The GDP of AIR is raised by 0.88% with a 0.29% price hike.

### III-E. Effects of Trade Creation with Repercussive Effects on the EC Economy

In this last simulation, small but complete models for France, Germany, the U.K. and the OEC are included in the PAIR link model. Only the trade creation shock, a 5% exogenous increase in the EC's GDP, is given to the full PAIR link model. This is partly because the effects of trade creation on the AIR economies are found to be much larger than those of trade diversion in the previous simulations, using the partial PAIR link model. There is one more reason why trade diversion shocks, which are increases in RP3 and/or RP1 in our study, are not attempted in the full PAIR link model. It is difficult to distinguish a decline in EC domestic prices due

to cost reductions caused by increased supply-side efficiency led by the EC market integration from a rise in the EC prices brought about by excess aggregate demand resulting from an increase in EC's exports when the EC is exposed to repercussive effects from external countries and regions.

Table 11 records increases in EC's imports caused by the initial and exogenous increase in EC's GDP by 5%. When we compare the impact on imports of commodities (MC) in Table 11 with that in Table 3, which presents the impact on EC imports of the trade creation shock using the partial PAIR link model, MCs in Table 11 are much larger than those in Table 3, by 6.48% points for France, by 5.12% points for Germany, by 4.37% points for the U.K. and by 2.92% points for OEC. These larger MCs for the EC countries and region are brought about by the repercussive gain in EC's GDP. In Table 12, increases in EC's GDP are presented, which consist of the initial 5% increase and the repercussive gain. The repercussive gains in EC's GDP are 3.75% points for France, 2.55% points for Germany, 1.76% points for the U.K. and 2.15% points for the OEC.

Table 12 also shows effects on the AIR economies of the trade creation shock measured in the full PAIR link model. Among the AIR economies, the NIEs are the largest beneficiary, obtaining a 5.71% increase in XC (1.57% points above Simulation III-A, shown in Table 4, which corresponds to the trade creation shock using the partial PAIR link model) and a 2.09% increase in GDP (0.88% points above Simulation III-A.) The AIR economy as a whole enjoys a 4.88% increase in XC (1.31% points above the Simulation III-A) and a 1.61% increase in GDP (0.53% points above Simulation III-A.)

#### IV. Summary and Conclusion

Economic impact of the EC market integration on the Asian industrializing region (the NIEs, ASEAN4 and China) is measured by simulating the PAIR link model. The first four simulations are conducted with the partial PAIR link model, only with import functions of two commodity groups of agricultural and mining goods, and manufactures for the EC countries and region. In the last one, a shock simulation is conducted in the full PAIR link model, incorporating full EC country/region models.

Since the PAIR link model includes models for the United States, Japan, Canada, Australia and New Zealand as well as those for the EC countries and region and those for the AIR economies, indirect impact of the EC market integration on AIR through the Pacific developed economies is also incorporated in our simulation results.

In the first four simulations of the partial PAIR link model, trade creation effects on exports and GDP of the AIR economies are found to be larger than trade diversion effects. In general, the NIEs are the largest beneficiary of the EC market integration among the AIR economies. There is, however, one simulation result in which percentage impact on GDP for the NIEs is slightly smaller than that for ASEAN4. In this simulation we assume a decrease in relative domestic prices of the EC only for manufactured goods in addition to a EC's income rise. Even in

Table 11. Impact on EC's Imports of 5% Increase in EC's GDP, with Repercussive Effects on the EC

	MC1	MC3	MC
France	8.08	20.40	14.88
Germany	10.27	20.63	14.72
U.K.	6.19	21.52	16.33
OECD	5.95	12.88	9.71

Note: See the footnotes to Table 3.

Table 12. Trade Creation Effects, with Repercussive Effects on the EC, on EC and AIR Economies

	XC1	XC2	XC3	XC	GDP	PGDP
NIEs	1.62	0.15	6.46	5.71	2.09	0.48
ASEAN4	1.58	0.30	6.98	2.95	1.63	0.64
China	1.84	0.15	4.07	3.85	1.12	0.35
AIR	1.68	0.22	6.00	4.88	1.61	0.49
France	6.70	0.01	13.42	12.49	8.75	-0.43
Germany	4.99	0.02	11.58	11.06	7.55	1.48
U.K.	5.02	0.07	11.48	10.61	6.76	-0.31
OECD	7.27	0.04	17.50	10.34	7.15	-

Note: See the footnotes to Table 4.

this case, the increase in GDP of the NIEs is much larger than that for ASEAN4 in quantity terms. Hence, these findings empirically support the propositions, concerning impact on developing economies of the EC market integration, by Pohl and Sorsa: 1) effects of trade creation may dominate those of trade diversion, 2) exporters of manufactures may obtain larger gains and 3) competitive exporters may also receive larger gains.

Trade creation effects are investigated again in the full PAIR link model. Positive repercussive effects on the EC itself of the EC's trade creation impact are observed for EC's GDP. Economic effects of the EC's trade creation on AIR's exports and GDP in the full PAIR link model are consequently found to be larger than those measured in the partial PAIR link model.

In the last half decade, the AIR economies needed to, or were forced to reduce their export dependency on the US market. They have succeeded in diversification of their exports by increasing their exports to the EC as well as those inside the AIR economies. This expansion of the exports is partly helped by construction of efficient network of a supply system of manufactures among the AIR economies and Japan. However, it is not clear whether it is beneficial for the AIR economies

to create an "economic community" in the Asian region. It is mainly because of low average per capita income of the AIR economy as a whole. However, this is an important issue to be studied further.

The EC plans to deepen and to widen its integration in the 1990s. Since the economic interdependency between AIR and the EC has been strengthened, it is important to study impact of further integration of the EC on the Asian economies.

## Notes

- 1) In the literature of classical customs union, "trade creation" is defined differently from ours. In the customs union theory, effects of imposing common tariffs for member countries are discussed. The trade creation in this theory implies increased trade among member countries due to reduced tariffs inside a customs union. (Refer to Robson (1971) and Kanemitsu (1991).) Our definition of trade creation relates to an increase in imports from an outside-economic community due to increased income or economic activities of the community caused by its economic integration. Refer to Pohl and Sorsa (1992) for the definitions of trade creation and trade diversion which are similar to ours.
- 2) An increase in a relative price of imports to domestic goods can be regarded, at least partly, as a possible effect of "EC Fort" resulting from an increase in tariff and/or non-tariff EC wide barriers.
- 3) A relative import price is not successfully incorporated only for the import function of agricultural and mining goods for the U.K. (See Table A1.) An import price itself, in addition to GDP, is included as an explanatory variable in the above equation.
- 4) The classical definition of "trade diversion" in the customs union theory (Refer to note (1).) indicates a decrease in imports from non-member countries because of increased import prices caused by imposition of common tariffs. Our definition of trade diversion is very close to the classical one. Our definition is, however, wider than the classical one in the sense that ours includes a decrease in imports from non-member countries due to decreased costs of production of an economic community caused by construction of a single market of member countries in addition to the classical definition mentioned above.

## Appendix

Table A1. Estimated Import Functions for Agricultural and Mining Goods (MC1) and for Manufactures (MC3) for the Three Major EC Countries and the Other EC Region

## -- FRANCE --

---


$$\log MC1 = -3.384476944 + 0.9260285277 * (\log GDP) - 0.2431174296 * (\log RP1) + 0.0670185125 * (D7779)$$

$$T-VAL.: \quad -5.617 \quad 23.455 \quad -2.991$$

$$3.662$$

$$SE = 0.0268 \quad DW = 1.9984 \quad R-SQ(ADJ) = 0.9656$$

$$F-STAT = 188.0184694$$

$$SAMPLE PERIOD : \quad 1970 - \quad 1990 \quad (21)$$


---

$$\log MC3 = -20.6135131 + 2.212224593 * (\log GDP) - 0.9144933422 * (\log RP3)$$

$$T-VAL. : \quad -11.539 \quad 18.900 \quad -2.379$$

$$SE = 0.0415 \quad DW = 2.0586 \quad R-SQ(ADJ) = 0.9878$$

$$F-STAT = 811.5518328$$

$$SAMPLE PERIOD : \quad 1970 - \quad 1990 \quad (21)$$


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## -- GERMANY --

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$$MC1 = -12677.64003 + 0.06213007542 * (GDP) - 20300.12446 * (RP1)$$

$$T-VAL. : \quad -1.039 \quad 20.280 \quad -2.476$$

$$ELAST. : \quad 1.4202 \quad -0.2528$$

$$SE = 1774.6962 \quad DW = 1.8236 \quad R-SQ(ADJ) = 0.9839$$

$$F-STAT = 550.4977806$$

$$SAMPLE PERIOD : \quad 1972 - \quad 1990 \quad (19)$$


---

$$\log MC3 = -24.62632597 + 2.576470193 * (\log GDP) - 0.5908868663 * (\log RP3) - 0.1027106642 * (D74) + 0.0453080692 * (D85)$$

$$T-VAL. : \quad -35.259 \quad 53.100 \quad -5.443$$

$$-4.200 \quad 1.874$$

$$SE = 0.0224 \quad DW = 1.9429 \quad R-SQ(ADJ) = 0.9947$$

$$F-STAT = 845.6822059$$

$$SAMPLE PERIOD : \quad 1972 - \quad 1990 \quad (19)$$


---



Table A1. (Continued)

## -- UNITED KINGDOM --

$$\log MC1 = -2.119590109 + 0.9177075026 * (\log GDP) - 0.1711033172 * (\log PMC1) \\ - 0.04925717295 * (D75) + 0.04118584219 * (D7677) - 0.03558090598 * (D8082)$$

T-VAL. :            -2.186            12.150                            -9.162  
                      -2.659                            2.830                            -2.758  
 SE =    0.0170            DW =    1.4969            R-SQ(ADJ)=    0.9387

F-STAT = 65.29392967

SAMPLE PERIOD :    1969 -    1990    ( 22)

$$\log MC3 = -27.11450129 + 2.979346585 * (\log GDP) - 0.513135451 * (\log RP3) \\ + 0.07857035258 * (D8384) - 0.09834661941 * (D8788) - 0.1238623904 * (D90)$$

T-VAL. :            -16.969            23.690                            -2.802  
                      2.383                            -2.559                            -2.421  
 SE =    0.0428            DW =    1.2903            R-SQ(ADJ)=    0.9901

F-STAT = 421.1725183

SAMPLE PERIOD :    1969 -    1990    ( 22)

## -- OTHER EC COUNTRIES --

$$MC1 = 27079.0241 + 0.04262760808 * (GDP) - 12370.76706 * (RP1) + 8101.270493 * (D73) \\ + 5703.324721 * (D79) - 8445.376812 * (D8185) + 4156.731007 * (D8889)$$

T-VAL. :    7.280            14.889            -4.789                            4.383  
                      3.203                            -8.793                            2.710

ELAST. :            0.8434            -0.2078

SE =    1647.7090            DW =    2.6452            R-SQ(ADJ)= 0.9629

F-STAT = 78.8136925

SAMPLE PERIOD :    1972 -    1990    ( 19)

$$MC3 = -173007.089 + 0.2979881534 * (GDP) - 30590.39557 * (RP3) + 28724.57144 \\ * (D7273) - 45761.02674 * (D8185) + 33201.81635 * (D8790)$$

T-VAL. :    -4.389            12.120                            -2.197                            2.913  
                      -7.371                            3.187

ELAST. :            2.0309            -0.1865

SE =    8803.9157            DW =    1.4859            R-SQ(ADJ)=    0.9834

F-STAT = 214.8692406

SAMPLE PERIOD :    1972 -    1990    ( 19)

## Variable List for Table A1

Variable	Description
MC1	Imports of Agricultural and Mining Goods
MC3	Imports of Manufactures
GDP	Gross Domestic Product
RP1	PM1 / PD1
RP3	PM3 / PD3
PM1	Import Prices of Agricultural and Mining Goods
PD1	Wholesale Prices of Agricultural and Mining Goods
PM3	Import Prices of Manufactures
PD3	Wholesale Prices of Manufactures
D's	Dummy Variables

Note:  $PD_i$  ( $i=1,3$ ) for the OEC (Other EC Countries) is defined as a weighted average of  $PD_i$  for France, Germany and the U.K., using 1987 GDP of the three countries as weights.

Table A2. Trade Creation Effects of 5% Increase in EC's GDP  
 (Simulation III-A)  
 -Impacts on Exports-

	XC1	XC2	XC3	XC
S. Korea	0.68	0.06	3.58	3.35
Taiwan	0.52	0.18	3.53	3.25
Hong Kong	1.94	0.04	7.39	6.98
Singapore	1.67	0.13	4.93	3.12
Asian NIEs	1.16	0.12	4.68	4.14
Thailand	0.69	0.50	6.37	2.49
Malaysia	1.56	0.56	4.88	2.51
Indonesia	0.89	0.15	3.28	1.08
Philippines	1.59	0.12	5.12	3.81
ASEAN4	1.13	0.25	5.02	2.13
China	1.15	0.12	3.38	3.08
AIR	1.14	0.18	4.43	3.57
U.S.A.	2.91	0.07	4.77	4.36
Canada	1.48	0.29	2.07	1.67
Japan	1.55	0.55	4.04	3.14
New Zealand	2.19	0.05	2.12	2.01
Australia	1.55	0.13	3.47	1.93

Table A3. Trade Creation Effects of 5% Increase in EC's GDP  
 (Simulation III-A)  
 -Impacts on GDP, GDP Deflator and Commodity Imports-

	GDP	GDP Deflator	MC
S. Korea	0.84	0.42	1.23
Taiwan	1.53	0.18	1.57
Hong Kong	1.91	0.16	5.72
Singapore	0.44	0.76	0.74
Asian NIEs	1.21	0.32	2.42
Thailand	0.97	0.39	1.51
Malaysia	1.54	0.74	2.28
Indonesia	1.14	0.39	1.11
Philippines	1.26	0.37	1.32
ASEAN4	1.18	0.46	1.65
China	0.89	0.28	0.97
AIR	1.08	0.35	1.97
U.S.A.	0.98	0.79	1.51
Canada	0.46	0.09	0.75
Japan	0.22	0.06	0.11
New Zealand	0.56	0.14	1.13
Australia	0.35	0.04	0.45

Table A4. Trade Creation Effects of 5% Increase in EC's GDP  
(Simulation III-A)  
-Impacts on Imports-

	MC1	MC2	MC3	MC
S. Korea	0.86	1.03	1.39	1.23
Taiwan	0.89	-	2.04	1.57
Hong Kong	2.10	-	6.65	5.72
Singapore	0.30	0.28	1.13	0.74
Asian NIEs	1.17	0.49	3.09	2.42
Thailand	1.20	1.53	1.56	1.51
Malaysia	1.63	0.78	2.64	2.28
Indonesia	1.53	-	1.28	1.11
Philippines	-	1.03	1.98	1.32
ASEAN4	1.33	0.93	1.87	1.65
China	1.04	-	0.76	0.97
AIR	1.14	0.54	1.72	1.97
U.S.A.	1.13	0.43	1.83	1.51
Canada	0.50	-	0.84	0.75
Japan	0.11	0.03	0.20	0.11
New Zealand	0.75	-	1.36	1.13
Australia	0.39	-	0.51	0.45

Note: "-" indicates the corresponding import function is not estimated.

Table A5. Trade Diversion Effects of 5% Increases in Both RPI and RP3  
(Simulation III-B)  
-Impacts on Exports-

	XC1	XC2	XC3	XC
S.Korea	-0.05	-0.01	-0.66	-0.62
Taiwan	-0.06	-0.03	-0.64	-0.59
Hong Kong	-0.29	-0.01	-1.29	-1.21
Singapore	-0.28	-0.02	-0.90	-0.57
Asian NIEs	-0.17	-0.02	-0.84	-0.74
Thailand	-0.12	-0.10	-1.19	-0.46
Malaysia	-0.27	-0.07	-0.93	-0.46
Indonesia	-0.16	-0.02	-0.56	-0.19
Philippines	-0.28	-0.02	-0.96	-0.71
ASEAN4	-0.20	-0.04	-0.94	-0.39
China	-0.20	-0.02	-0.59	-0.53
AIR	-0.19	-0.03	-0.80	-0.64
U.S.A.	-0.51	-0.01	-0.83	-0.76
Canada	-0.27	-0.05	-0.40	-0.32
Japan	-0.11	-0.07	-0.73	-0.57
New Zealand	0.47	-0.01	-0.31	-0.35
Australia	-0.08	-0.02	-0.63	-0.34

Table A6. Trade Diversion Effects of 5% Increases in Both RPI and RP3  
(Simulation III-B)  
-Impacts on GDP, GDP Deflator and Commodity Imports-

	GDP	GDP Deflator	MC
S.Korea	-0.15	-0.08	-0.23
Taiwan	-0.28	-0.03	-0.29
Hong Kong	-0.34	-0.03	-0.99
Singapore	-0.08	-0.14	-0.14
Asian NIEs	-0.22	-0.06	-0.43
Thailand	-0.18	-0.07	-0.26
Malaysia	-0.29	-0.14	-0.42
Indonesia	-0.20	-0.07	-0.20
Philippines	-0.23	-0.07	-0.24
ASEAN4	-0.21	-0.08	-0.30
China	-0.16	-0.05	-0.14
AIR	-0.19	-0.06	-0.35
U.S.A.	-0.17	-0.14	-0.26
Canada	-0.08	-0.02	-0.14
Japan	-0.04	-0.01	-0.02
New Zealand	-0.10	-0.02	-0.20
Australia	-0.06	-0.01	-0.08

Table A7. Trade Diversion Effects of 5% Increases in Both RPI and RP3 (Simulation III-B)  
-Impacts on Imports-

	MC1	MC2	MC3	MC
S.Korea	-0.16	-0.19	-0.26	-0.23
Taiwan	-0.16	-	-0.37	-0.29
Hong Kong	-0.36	-	-1.15	-0.99
Singapore	-0.05	-0.05	-0.20	-0.14
Asian NIEs	-0.21	-0.09	-0.55	-0.43
Thailand	-0.21	-0.26	-0.27	-0.26
Malaysia	-0.30	-0.14	-0.49	-0.42
Indonesia	-0.27	-	-0.23	-0.20
Philippines	-	-0.19	-0.36	-0.24
ASEAN4	-0.24	-0.17	-0.34	-0.30
China	-0.18	-	-0.13	-0.14
AIR	-0.20	-0.10	-0.30	-0.35
U.S.A.	-0.20	-0.08	-0.32	-0.26
Canada	-0.09	-	-0.15	-0.14
Japan	-0.02	-0.00	-0.04	-0.02
New Zealand	0.13	-	-0.24	-0.20
Australia	-0.07	-	-0.08	-0.08

Note: “-” indicates the corresponding import function is not estimated.



Table A8. Combined Effects of Both Trade Creation and Diversion  
(Simulation III-C)  
-Impacts on Exports-

	XC1	XC2	XC3	XC
S. Korea	0.62	0.05	2.81	2.63
Taiwan	0.45	0.15	2.78	2.55
Hong Kong	1.57	0.03	5.85	5.53
Singapore	1.35	0.10	3.87	2.45
Asian NIEs	0.96	0.09	3.69	3.26
Thailand	0.56	0.38	4.98	1.97
Malaysia	1.27	0.45	3.78	1.97
Indonesia	0.72	0.12	2.59	0.86
Philippines	1.30	0.09	3.99	3.00
ASEAN4	0.92	0.20	3.92	1.68
China	0.93	0.09	2.66	2.43
AIR	0.93	0.14	3.49	2.82
U.S.A.	2.36	0.06	3.79	3.47
Canada	1.20	0.22	1.61	1.31
Japan	1.38	0.43	3.18	2.47
New Zealand	2.66	0.04	1.75	1.65
Australia	1.44	0.10	2.69	1.52

Table A9. Combined Effects of Both Trade Creation and Diversion  
(Simulation III-C)  
-Impacts on GDP, GDP Deflator and Commodity Imports-

	GDP	GDP Deflator	MC
S. Korea	0.66	0.33	0.96
Taiwan	1.20	0.14	1.24
Hong Kong	1.52	0.13	4.53
Singapore	0.35	0.60	0.59
Asian NIEs	0.95	0.25	1.91
Thailand	0.76	0.31	1.19
Malaysia	1.21	0.58	1.79
Indonesia	0.90	0.31	0.89
Philippines	0.99	0.29	1.04
ASEAN4	0.93	0.37	1.30
China	0.70	0.22	0.62
AIR	0.85	0.28	1.55
U.S.A.	0.78	0.63	1.20
Canada	0.36	0.07	0.59
Japan	0.17	0.05	0.09
New Zealand	0.46	0.11	0.92
Australia	0.28	0.03	0.36

Table A10. Combined Effects of Both Trade Creation and Diversion  
(Simulation III-C)  
-Impacts on Imports-

	MC1	MC2	MC3	MC
S. Korea	0.68	0.81	1.09	0.96
Taiwan	0.70	-	1.61	1.24
Hong Kong	1.68	-	5.26	4.53
Singapore	0.23	0.22	0.89	0.59
Asian NIEs	0.93	0.39	2.44	1.91
Thailand	0.94	1.20	1.23	1.19
Malaysia	1.28	0.61	2.07	1.79
Indonesia	1.22	-	1.02	0.89
Philippines	-	0.81	1.56	1.04
ASEAN4	1.05	0.73	1.47	1.30
China	0.82	-	0.60	0.62
AIR	0.90	0.42	1.35	1.55
U.S.A.	0.90	0.34	1.46	1.20
Canada	0.39	-	0.66	0.59
Japan	0.09	0.02	0.16	0.09
New Zealand	0.61	-	1.11	0.92
Australia	0.31	-	0.40	0.36

Note: “-” indicates the corresponding import function is not estimated.

Table A11. Effects of Trade Creation and Trade Diversion in  
Manufacturing Industry (Simulation III-D)  
-Impacts on Exports-

	XC1	XC2	XC3	XC
S. Korea	0.63	0.05	2.83	2.65
Taiwan	0.47	0.15	2.80	2.58
Hong Kong	1.75	0.03	5.89	5.57
Singapore	1.56	0.10	3.90	2.50
Asian NIEs	1.06	0.10	3.71	3.29
Thailand	0.67	0.39	5.00	2.08
Malaysia	1.49	0.45	3.80	2.07
Indonesia	0.86	0.12	2.61	0.91
Philippines	1.53	0.09	4.02	3.11
ASEAN4	1.08	0.20	3.94	1.77
China	1.09	0.10	2.67	2.49
AIR	1.08	0.14	3.51	2.86
U.S.A.	2.82	0.06	3.81	3.54
Canada	1.40	0.23	1.64	1.38
Japan	1.39	0.44	3.20	2.49
New Zealand	2.12	0.04	1.76	1.87
Australia	1.47	0.11	2.72	1.63

Table A12. Effects of Trade Creation and Trade Diversion in  
Manufacturing Industry (Simulation III-D)  
-Impacts on GDP, GDP Deflator and Commodity Imports-

	GDP	GDP Deflator	MC
S. Korea	0.66	0.33	0.97
Taiwan	1.22	0.14	1.25
Hong Kong	1.53	0.13	4.56
Singapore	0.35	0.61	0.60
Asian NIEs	0.96	0.26	1.92
Thailand	0.81	0.33	1.26
Malaysia	1.27	0.61	1.88
Indonesia	0.96	0.33	0.95
Philippines	1.03	0.30	1.08
ASEAN4	0.99	0.39	1.37
China	0.72	0.22	0.63
AIR	0.88	0.29	1.58
U.S.A.	0.80	0.64	1.23
Canada	0.38	0.07	0.62
Japan	0.17	0.05	0.09
New Zealand	0.52	0.13	1.05
Australia	0.30	0.03	0.39

Table A13. Effects of Trade Creation and Trade Diversion in  
Manufacturing Industry (Simulation III-D)  
-Impacts on Imports-

	MC1	MC2	MC3	MC
S. Korea	0.68	0.82	1.10	0.97
Taiwan	0.71	-	1.62	1.25
Hong Kong	1.75	-	5.29	4.56
Singapore	0.24	0.22	0.90	0.60
Asian NIEs	0.96	0.39	2.45	1.92
Thailand	1.00	1.27	1.30	1.26
Malaysia	1.35	0.64	2.18	1.88
Indonesia	1.30	-	1.09	0.95
Philippines	-	0.84	1.62	1.08
ASEAN4	1.11	0.77	1.55	1.37
China	0.84	-	0.61	0.63
AIR	0.93	0.43	1.38	1.58
U.S.A.	0.92	0.35	1.49	1.23
Canada	0.41	-	0.69	0.62
Japan	0.09	0.02	0.16	0.09
New Zealand	0.69	-	1.26	1.05
Australia	0.34	-	0.43	0.39

Note: “-” indicates the corresponding import function is not estimated.

Table A14. Trade Creation Effects, with Repercussive Effects on the EC  
(Simulation III-E)  
-Impacts on Exports-

	XC1	XC2	XC3	XC
S. Korea	0.98	0.08	4.96	4.64
Taiwan	0.74	0.23	4.79	4.41
Hong Kong	2.52	0.05	10.32	9.73
Singapore	2.42	0.16	6.75	4.28
Asian NIEs	1.62	0.15	6.46	5.71
Thailand	0.98	0.67	8.96	3.50
Malaysia	2.16	0.68	6.76	3.45
Indonesia	1.27	0.19	4.46	1.47
Philippines	2.24	0.15	7.11	5.30
ASEAN4	1.58	0.30	6.98	2.95
China	1.84	0.15	4.07	3.85
AIR	1.68	0.22	6.00	4.88
U.S.A.	4.07	0.09	6.72	6.13
Canada	2.05	0.38	2.83	2.29
Japan	2.20	0.66	5.59	4.35
New Zealand	3.02	0.06	2.84	2.75
Australia	2.15	0.16	4.71	2.63

Table A15. Trade Creation Effects, with Repercussive Effects on the EC  
(Simulation III-E)  
-Impacts on GDP, GDP Deflator and Commodity Imports-

	GDP	GDP Deflator	MC
S. Korea	1.16	0.58	1.70
Taiwan	2.08	0.24	2.14
Hong Kong	5.54	0.45	6.15
Singapore	0.60	1.04	1.02
Asian NIEs	2.09	0.48	2.87
Thailand	1.35	0.55	2.10
Malaysia	2.12	1.01	3.14
Indonesia	1.56	0.53	1.53
Philippines	1.74	0.51	1.83
ASEAN4	1.63	0.64	2.27
China	1.12	0.35	0.99
AIR	1.61	0.49	2.40
U.S.A.	1.38	1.10	2.12
Canada	0.63	0.12	1.02
Japan	0.30	0.09	0.15
New Zealand	0.77	0.19	1.54
Australia	0.48	0.05	0.61



Table A16. Trade Creation Effects, with Repercussive Effects on the EC  
(Simulation III-E)  
-Impacts on Imports-

	MC1	MC2	MC3	MC
S. Korea	1.19	1.43	1.93	1.70
Taiwan	1.21	-	2.77	2.14
Hong Kong	4.94	-	6.70	6.15
Singapore	0.41	0.38	1.54	1.02
Asian NIEs	2.23	0.68	3.51	2.87
Thailand	1.66	2.12	2.16	2.10
Malaysia	2.24	1.06	3.64	3.14
Indonesia	2.11	-	1.77	1.53
Philippines	-	1.43	2.76	1.83
ASEAN4	1.83	1.28	2.58	2.27
China	1.32	-	0.95	0.99
AIR	1.86	0.74	2.05	2.40
U.S.A.	1.58	0.61	2.57	2.12
Canada	0.68	-	1.15	1.02
Japan	0.16	0.04	0.27	0.15
New Zealand	1.02	-	1.85	1.54
Australia	0.53	-	0.68	0.61

Note: “-” indicates the corresponding import function is not estimated.

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